

Find the slope between

$$(3, -2) (-4, 5)$$

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$$\frac{5 - (-2)}{-4 - 3} = \frac{7}{-7} = -1 \quad \frac{5 - (-2)}{3 - (-4)} = \frac{7}{7} = 1$$

• Graphing Linear Equations .

Linear equation follows $y = mx + b$

m slope
 b y intercept

Slope-intercept form

Point - Slope form

$$y - y_1 = m(x - x_1)$$

(x_1, y_1) - point on line

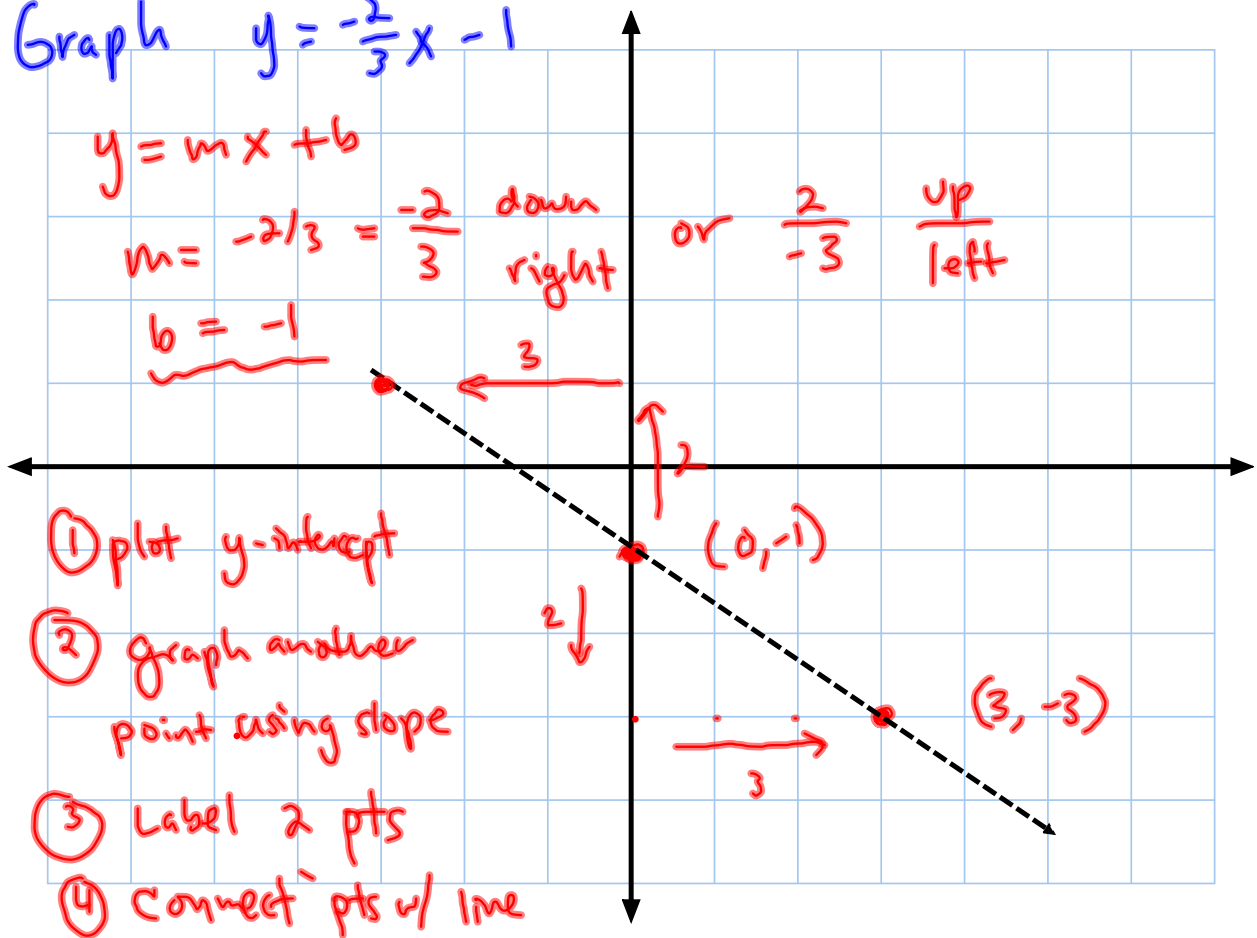
$m = \text{slope}$

Graph $y = -\frac{2}{3}x - 1$

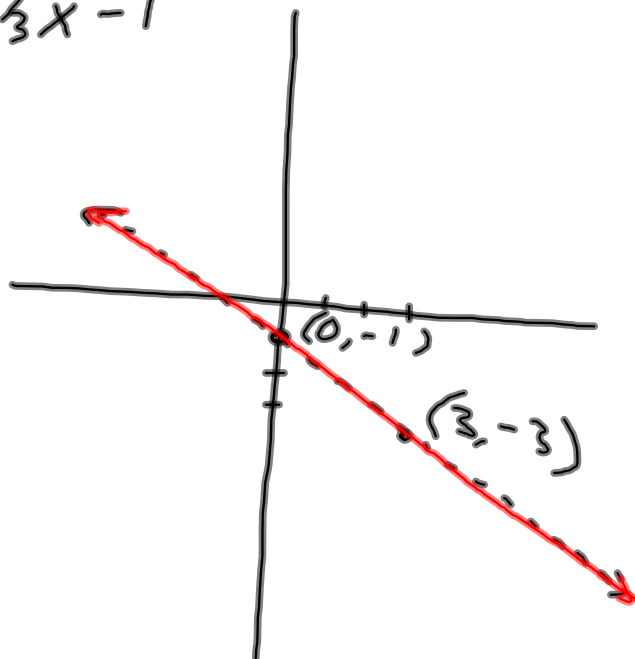
$$y = mx + b$$

$$m = -\frac{2}{3} = \frac{-2}{3} \begin{array}{l} \text{down} \\ \text{right} \end{array} \quad \text{or} \quad \frac{2}{-3} \begin{array}{l} \text{up} \\ \text{left} \end{array}$$

$$\underline{b = -1}$$



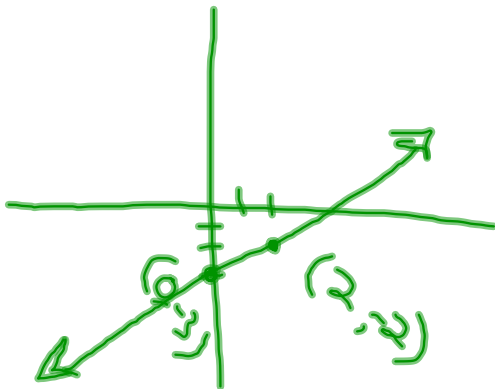
$$y = -\frac{2}{3}x - 1$$



Graph $y = \frac{1}{2}x - 3$

$$b = -3$$

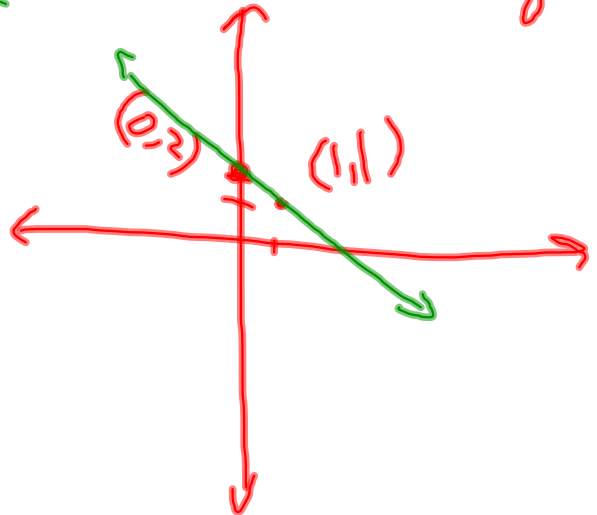
$$m = \frac{1}{2} = \frac{\text{up } 1}{\text{right } 2}$$



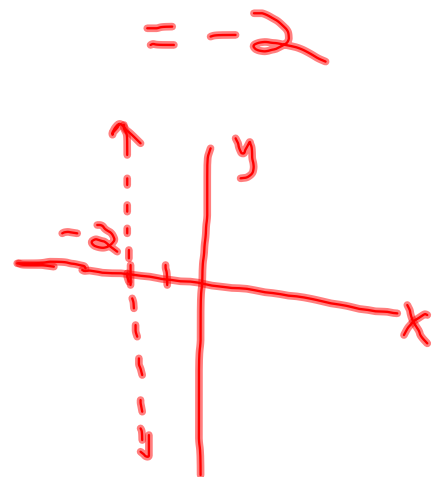
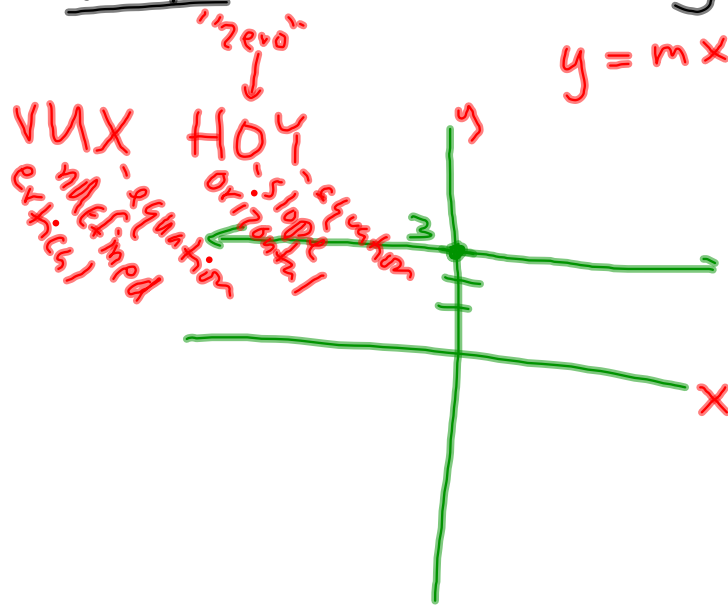
$$y = -x + 2$$

$$b = 2$$

$$m = -1 = -\frac{1}{1} = \frac{\text{down } 1}{\text{right } 1}$$



Example : Graph $y = 3$ $b = 3$
 $y = mx + b$ $m = 0$



$$5x + 2y = 10$$

Standard Form

Graph : pluggin in zeros for x & y

$$x = 0$$

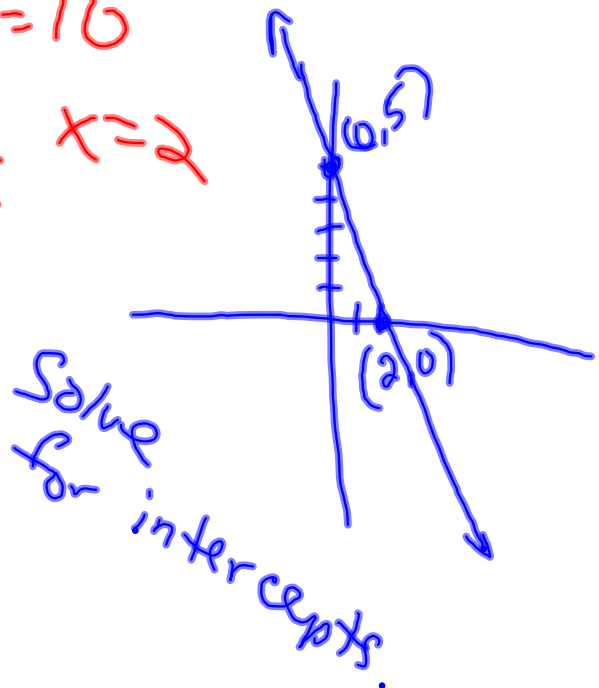
$$(0, 5)$$

$$\cancel{5(0)} + \frac{2y}{2} = \frac{10}{2} \quad y = 5$$

$$y = 0$$

$$(2, 0)$$

$$5x + \cancel{2(0)} = 10$$
$$\frac{5x}{5} = \frac{10}{5} \quad x = 2$$



$$\frac{6y}{6} = \frac{3x+6}{6}$$

$$y = \frac{1}{2}x + 1$$

$$y = mx + b$$

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→ Label 2 pts
on each
graph

